FORTRAN

Course Description: This course is designed to give the student an introduction to FORTRAN programming. The student will utilize the commands, statements, and procedures of this language to develop computer programs.

Prerequisites: Keyboarding

Prerequisites or Concurrent with: Algebra I

Recommended Prerequisites or Concurrent with: Computer Applications, Word Processing Essentials, Career Connection

Grades: 9, 10, 11, 12

Recommended Credit: 1 Credit

Standard 1.0

The student will gain competency in the background knowledge of computers and programming.

Learning Expectations

The student will

1. Discuss the history of computers and programming languages.
2. Describe the purposes of the computer and the FORTRAN language.
3. Discuss the architecture of the computer.
4. Summarize the characteristics of the FORTRAN programming language.
5. Critique the role of the computer in society.

Performance Indicators: Evidence Standard Is Met

The student is able to

- summarize the history of computers and programming languages.
- explain the use of the FORTRAN language.
- discuss the structure of the FORTRAN programming language.

Sample Performance Task

The student will develop a timeline for the history of computers and programming languages. Proficiency would be designated by the given dates and the content area covered on the timeline.

Integration/Linkages

All subject areas, SCANS, National Standards for Business Education, National Science Education Standards, National Math Standards, National Educational Technology Standards (NETS), Data Processing Management Association

Standard 2.0

The student will use system operations as they relate to FORTRAN programs on the computer.

Learning Expectations
The student will

1. Demonstrate computer start-up procedures.
2. Discuss the basic structure of the FORTRAN language.
3. Explain FORTRAN program entry, listing and editing as it relates to the operating system.
4. Discuss the execution of programs.
5. Explain the storage, retrieval and deletion of programs.

Performance Indicators: Evidence Standard Is Met

The student is able to

- demonstrate the use of a prepared FORTRAN program on the computer.

Sample Performance Task(s)

The student will demonstrate entry of and execution of a prepared program. In addition the student will retrieve the program, edit and execute the edited program. Evaluation is determined by the successful execution of the programs.

Integration/Linkages

All subject areas, SCANS, National Standards for Business Education, National Science Education Standards, National Math Standards, National Educational Technology Standards (NETS), Data Processing Management Association

Standard 3.0

The student will write and document an executable program in FORTRAN

Learning Expectations
The student will

1. Identify names for variables and their data types.
2. Recognize the symbols for operations and use them in evaluating data.
3. Demonstrate the various methods of obtaining input/output and formatting output.
4. Analyze the task and develop an algorithm.
5. Demonstrate control statements.
6. Identify, illustrate and perform operations on data types in arrays.
7. Identify and use functions.
8. Read and/or write data files for input/output purposes.
9. Debug the program and verify the output of the program.

Performance Indicators: Evidence Standard Is Met

The student is able to

- analyze, design and write a minimum of two executable programs in FORTRAN for each of the Learning Expectations.

Sample Performance Task

Each student will write a program that converts data from one unit of measurement to another unit of measurement. Evaluation will be the successfull operation of the program.

Integration/Linkages

All subject areas, SCANS, National Standards for Business Education, National Science Education Standards, National Math Standards, National Educational Technology Standards (NETS), Data Processing Management Association

Standard 4.0

The student will work as a team member to develop an integrated application using FORTRAN.

Learning Expectations
The student will

1. Define the roles of the team members.
2. Solve a complex task using FORTRAN.
3. Compare and contrast the advantages of working as a group.

Performance Indicators: Evidence Standard Is Met

The team is able to

- analyze and present the solution of the task.

Integration/Linkages

All subject areas, SCANS, National Standards for Business Education, National Science Education Standards, National Math Standards, National Educational Technology Standards (NETS), Data Processing Management Association